

REMARKS

The present application was filed on January 21, 2004 with claims 1-13.

In the outstanding Office Action dated April 24, 2007, the Examiner: (i) rejected claims 1-4 and 9-12 under 35 U.S.C. §112, first paragraph; (ii) rejected claims 1-4 and 9-12 under 35 U.S.C. §112, second paragraph; (iii) rejected claims 1 and 3-4 under 35 U.S.C. §102(b) as being clearly anticipated by U.S. Patent No. 5,847,981 to Kelley et al. (hereinafter “Kelley”); and (iv) rejected claims 2 and 5-13 under 35 U.S.C. §103(a) as being unpatentable over Kelley.

In this response, Applicants respectfully request reconsideration of the present application in view of the amendments above and remarks below.

With regard to the §112, first paragraph rejection of claims 1-4 and 9-12, the specification at page 7, line 10 indicates that carry save form and redundant binary form are interchangeable terms of art. Furthermore, a paper by D.S. Phatak, Tom Goff and Israel Koren, entitled “Redundancy Management in Arithmetic Processing via Redundant Binary Representations” (<http://www.csee.umbc.edu/~phatak/publications/asilomar99.pdf>) notes that redundant digit sets are variants of the well-known signed-digit and carry-save representations.

Accordingly, Applicants respectfully request the §112, first paragraph rejection be withdrawn.

Regarding the §112, second paragraph rejection of claims 1-4 and 9-12, support for the phrase “redundant binary form” can be found on page 7, line 10 of the present specification. Independent claims 1 and 9 have been amended to recite a “resulting product in two’s complement form” to clarify the claimed subject matter.

Accordingly, the §112, second paragraph rejection of claims 1-4 and 9-12 should be withdrawn.

With regard to the §102(b) rejection of claims 1, 3 and 4, Applicants initially note that MPEP §2131 specifies that a given claim is anticipated “only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference,” citing Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Moreover, MPEP §2131 indicates that the cited reference must show the “identical invention . . . in as complete detail as is contained in the . . . claim,” citing Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants respectfully traverse the §102(b) rejection on the ground that the Li reference fails to teach or suggest each and every limitation of claims 1, 3 and 4 as alleged.

Amended claim 1 is directed to a multiplier, comprising: a Wallace tree block calculating partial products for two input values as objects of multiplication and adding the partial products into a redundant binary form; and a carry propagation adder converting a redundant binary number outputted from the Wallace tree block into a resulting product in two's complement form, wherein the Wallace tree block comprises: a sum calculation block adding the partial products, and a carry calculation block adding carries generated by the sum calculation block.

In the Kelley reference, FIG. 3 includes adder 560. However, no where does Kelley teach or suggest the adder converting a redundant binary number outputted from the Wallace tree block into a two's complement form. The only reference to "two's complement" refers to the values of a(i) or b(i), or both, have slight restrictions placed on them, such as when the a(i) or b(i), or both, are two's complement numbers, and a(i) and b(i), or both, never have a maximum negative value, the number of bits in one or both of the sum register 580 and the carry register 585 can be designed to be one bit smaller.

Accordingly, it is believed that the teachings of Kelley fail to meet the limitations of claim 1.

Dependent claims 3 and 4 recite patentable subject matter at least by virtue of their respective dependency from independent claim 1, and also recite patentable subject matter in their own right.

With regard to the §103(a) rejection of claim 5, the Examiner refers to claim 5 as being similar to the combination of claims 2 and 3, and is thus rejected under a similar rationale.

Regarding claim 2, the Kelley reference, even if modified, does not teach or suggest a result of the calculation of the sum calculation block is outputted as a result of the multiplication over an extension field of two.

With regard to claim 3, Applicants assert that the Examiner has failed to provide any explanation of the reasoning in reaching the conclusion that this claim is unpatentable (e.g., indicating the specific portions of each patent which the Examiner believes render obvious each limitation of the claim). Applicants respectfully submit that the present Office Action therefore fails to comply with 35 U.S.C. 132(a) ("Whenever, on examination, any claim for a patent is rejected, or any objection or requirement made, the Director shall notify the applicant thereof,

stating the reasons for such rejection, or objection or requirement, together with such information and references as may be useful in judging of the propriety of continuing the prosecution of his application.”); 37 CFR 1.104(c)(2) (“In rejecting claims for want of novelty or for obviousness, the examiner must cite the best references at his or her command. When a reference is complex or shows or describes inventions other than that claimed by the applicant, the particular part relied on must be designated as nearly as practicable. The pertinence of each reference, if not apparent, must be clearly explained and each rejected claim specified.”); and MPEP 706.02(j) (“Where a reference is relied on to support a rejection, whether or not in a minor capacity, that reference should be positively included in the statement of the rejection. See *In re Hoch*, 428 F.2d 1341, 1342 n.3 166 USPQ 406, 407 n. 3 (CCPA 1970). It is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply.”)

Thus, in the event the present application is not considered to be in condition for allowance responsive to the remarks made herein, Applicants respectfully request that a new Office Action clearly setting forth a response to all arguments raised herein be issued and the new Office Action should be indicated as having a non-final status so that Applicants can be afforded a fair and reasonable opportunity to reply.

Accordingly, the §103(a) rejection of claim 5 should be withdrawn.

Independent claim 13 includes limitations similar to those of claim 5, and is therefore believed allowable for reasons similar to those described above with reference to claim 5.

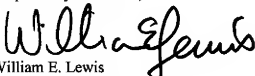
Dependent claims 6-8 recite patentable subject matter at least by virtue of their respective dependency from independent claim 5, and also recite patentable subject matter in their own right.

Independent claim 9 includes limitations similar to those of claim 1, and is therefore believed allowable for reasons similar to those described above with reference to claim 1.

Dependent claims 2 and 10-12 recite patentable subject matter at least by virtue of their respective dependency from independent claims 1 and 9, and also recite patentable subject matter in their own right.

In view of the above, Applicants believe that claims 1-13 are in condition for allowance, and respectfully request withdrawal of the §112, §102(b) and §103(a) rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "William E. Lewis". The signature is fluid and cursive, with the first name "William" being the most prominent part.

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William E. Lewis
Attorney for Applicant(s)
Reg. No. 39,274
Ryan, Mason & Lewis, LLP
90 Forest Avenue
Locust Valley, NY 11560
(516) 759-2946